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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,135	11/21/2003	Jae Hong Kim	30205/38081 A	2226

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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,135

Applicant(s)

KIM ET AL.

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-51 ~~30-49~~ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-51 ~~30-49~~ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/096,266.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 30-42 and 46-48 are rejected under 35 U.S.C. 103(a) as obvious over Wang et al. (337) in view of Wang et al. (991) and Dirkson et al. and further in view of (1) applicants own admission on page 4, lines 10-14 and (2) Mueller et al. (935) for the same reasons set forth in the previous office action which are incorporated herein by reference.

Claims 30-42 and 46-48 are rejected under 35 U.S.C. 103(a) as obvious over Wang et al. (991) in view of Dirkson et al. and Wang et al. (337) and further in view of either (1) applicants own admission on page 4, lines 10-14 and (2) Mueller et al. (935) for the same reasons set forth in the previous office action which are incorporated herein by reference.

Claims 30-49 are rejected under 35 U.S.C. 103(a) as obvious over Yano et al. (590) in view of Carpio et al. and further in view of either (1) applicants own admission on page 4, lines 10-14 and (2) Mueller et al. (935) for the same reasons set forth in the previous office action which are incorporated herein by reference.

New claims 50-51 are rejected under 35 U.S.C. 103(a) as obvious over Yano et al. (590) in view of Carpio et al.

Although the primary reference does not literally define polishing a RTN pattern, the broad disclosure on page 16, lines 32-35 makes this obvious because metal composites include nitrides of the defined metals (combination). With respect to the amount of nitrate, amount of abrasive, and use of an acid and pH, the primary reference clearly defined these. With respect to

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the buffer solution, it is the examiners position that one skilled in the art would have found the use of any conventional buffer solution, as shown by Carpio et al., obvious as the pH adjustor according to the primary reference because the substitution of one known pH adjustor for another that is used for the same purpose is well within the level of ordinary skill in the art. Applicants limit the abrasive and oxidant by “consisting essentially of” and as is clearly disclose by the primary reference the oxidant can only be CAN (within the scope of consisting essentially of”). Although the primary reference use polymer particles, the “consisting essentially of” language to define the abrasive does not provide a patentable distinction over this reference because (1) the polymer particle are not necessarily defined as abrasives and (2) the final composition uses open language to include other particle (not specifically defined as abrasive particle). In addition, and assuming arguendo, “consisting essentially of” does not exclude polymer particles because it is the examiners position that these particles will not materially effect the basic and novel characteristics of the composition and thus are still within the limitation of “consisting essentially of”

Applicant's arguments filed 2/10/05 have been fully considered but they are not persuasive.

With respect to the rejections **(A)** based on Wang et al. (337) in view of Wang et al. (991) and Dirkson et al. and further in view of (1) applicants own admission on page 4, lines 10-14 and (2) Mueller et al. (935) and **(B)** Wang et al. (991) in view of Dirkson et al. and Wang et al. (337) and further in view of either (1) applicants own admission on page 4, lines 10-14 and (2) Mueller et al. (935).

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Applicants apparently argue that Wang et al. (337) and Wang et al. (991) fail to teach the newly added limitation between the amount of ceric ammonium nitrate (CAN) and the acid. This is not persuasive because as can be clearly seen, the reference teaches amounts for these components which can meet the claimed limitation (i.e. the amount of CAN can be greater than the amount of acid). If applicants are suggesting unexpected results, this is not persuasive because (1) applicants must compare the claims with the closest prior art and (2) applicants have not shown a significant amount of tests both inside and outside the claimed limitation to show the criticality of the claimed limitation. In addition, absent individual amounts, the newly added weight comparison limitation is extremely broad and the evidence needed to establish unexpected results would be extremely large.

Applicants also apparently argue that the references make no correlation between RTN (ruthenium titanium nitride) and CAN. This is not persuasive because, although a correlation is not specifically defined, this is immaterial because the claimed composition (both reference compositions can contain CAN (Wang et al. (337) clearly disclosed CAN and CAN being obvious by the use of cerium compounds as disclosed in Wang et al. (991)-see previous office action) and an acid) can be used to polish RTN films (obvious for the previous reasons which applicant has not argued). Why aren't RTN films encompassed by the teachings defined by the reference (see previous office action)? Applicants are reminded that **"A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda***

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159 USPQ 342 (CCPA 1968). In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

Applicants also apparently argue that Wang et al. (337) does not teach polishing a RTN layer in conjunction with an insulating layer (said RTN layer formed on top of the insulating layer). This is not persuasive because (1) the RTN layer is obvious for the reasons defined in the previous office action which are incorporated herein by reference and (2) the reference clearly teaches in section [0040] that the metal layer (RTN) can be on top of an oxide layer (oxide layer can be considered an insulating layer), thus the broad interpretation of this section reads on polishing a RTN layer in conjunction with an insulating layer (said RTN layer formed on top of the insulating layer).

Applicants also apparently argue that Wang et al. (991) does not teach polishing a RTN layer in conjunction with an insulating layer (said RTN layer formed on top of the insulating layer). This is not persuasive because (1) the RTN layer is obvious for the reasons defined in the previous office action which are incorporated herein by reference and (2) the reference clearly teaches in section [0013] that the substrate comprises a metal layer and a an oxide layer (oxide layer can be considered an insulating layer), thus the broad interpretation of this section reads on polishing a RTN layer in conjunction with an insulating layer, said RTN layer formed on top of the insulating layer because the insulating layer is generally under the conductive layer.

With respect to the secondary references used in the these rejections, applicants do not argue the combination as applied in the previous office action and therefore no comment is

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deemed necessary. However, applicants appear to argue these teachings alone which is improper because a combination rejection was made.

With respect to the rejection based on Yano et al. (590) in view of Carpio et al. and further in view of either (1) applicants own admission on page 4, lines 10-14 and (2) Mueller et al. (935).

Applicants apparently argue that Yano et al. fails to teach the newly added limitation between the amount of ceric ammonium nitrate (CAN) and the acid. This is not persuasive because as can be clearly seen, the reference teaches amounts for these components which can meet the claimed limitation (i.e. the amount of CAN can be greater than the amount of acid). If applicants are suggesting unexpected results, this is not persuasive because (1) applicants must compare the claims with the closest prior art and (2) applicants have not shown a significant amount of tests both inside and outside the claimed limitation to show the criticality of the claimed limitation. In addition, absent individual amounts, the newly added weight comparison limitation is extremely broad and the evidence needed to establish unexpected results would be extremely large.

Applicants also apparently argue that the reference make no correlation between RTN (ruthenium titanium nitride) and CAN (and an acid). This is not persuasive because, although a correlation is not specifically defined, this is immaterial because the claimed composition (the reference composition can contain CAN and an acid) can be used to polish RTN films (obvious for the previous reasons which applicant has not argued). Why aren't RTN films encompassed by the teachings defined by the reference (see previous office action)? Applicants are reminded

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that "A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

Applicants also apparently argue that the primary reference does not teach polishing a RTN layer in conjunction with an insulating layer (said RTN layer formed on top of the insulating layer). This is not persuasive because (1) the RTN layer is obvious for the reasons defined in the previous office action which are incorporated herein by reference and (2) the reference clearly teaches in figure 2 that the metal layer (RTN) can be on top of an oxide layer (oxide layer can be considered an insulating layer), thus the broad interpretation of this section reads on polishing a RTN layer in conjunction with an insulating layer (said RTN layer formed on top of the insulating layer).

With respect to the secondary references used in the these rejections, applicants do not argue the combination as applied in the previous office action and therefore no comment is deemed necessary. However, applicants appear to argue these teachings alone which is improper because a combination rejection was made.

Finally, applicants limit the abrasive and oxidant by "consisting essentially of" and it is argued that none of these reference meet this limitation. Contrary to applicants position, the two

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Wang et al. primary reference clearly disclose an inorganic abrasive and an oxidant that can only be CAN (within the scope of consisting essentially of'). With respect to Yano et al., the same remarks as in the rejection of the new claims above is herein defined to rebut this argument.

The rejections of claims 30-42 and 46-48 based on (1) Dirksen et al. in view of Wang et al. (337) and further in view of applicants own admission on page 4, lines 10-14 or Mueller et al. (935) and (2) Wang et al. (365) in view of Wang et al. (337) and further in view of applicants own admission on page 4, lines 10-14 or Mueller et al. (935) and (3) have been **withdrawn** because the primary references fail to teach or suggest polishing a RTN film that is disposed on **top of a patterned interlayer insulating layer** and the secondary references provide **no** motivation to enable an obvious rejection.

The rejection of claims 30-37, 39-42 and 46-48 based on Mueller et al. (935) in view of Dirksen et al. and Wang et al. (337) and applicants own admission on page 4, lines 10-14 has been withdrawn because the primary reference fails t teach or suggest polishing a RTN film that is disposed on **top of a patterned interlayer insulating layer** and the secondary references provide **no** motivation to enable an obvious rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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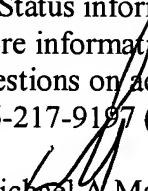
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

4/05
MM


Michael A. Marcheschi
Primary Examiner
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